



# Diagnostic Service to Test for Herbicide-resistant Weeds in Oklahoma

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Extension Weed Science Specialist

## Why should I be concerned about herbicide-resistant weeds?

Herbicide resistance is an increasing concern in Oklahoma crop production. Continual use of a single herbicide or single mode of action places heavy selection pressure on a population of weeds to find the few resistant individuals that may be present. Given enough time and enough herbicide applications, resistant weeds will develop and can quickly take over large areas. This is especially true in no-till or mono-crop production, where herbicides are used more frequently. If populations of herbicide-resistant weeds increase, effective herbicide options will become very limited.

## Why should I submit a sample?

The only way to know for sure if resistance is developing in your field is to test the suspected weeds. Early detection of herbicide-resistant weeds is an important step in designing an effective weed management program to prevent the development and spread of the resistant weed. Plus, thanks to the support of the Oklahoma Peanut Commission, Oklahoma Soybean Board, and the Oklahoma Wheat Commission, screening of potentially resistant weeds is provided as a FREE service to any producer in Oklahoma.

## Which weeds are of greatest concern?

Pigweed species, Italian ryegrass, cheat, marehail, giant ragweed, and johnsongrass are some of the weeds most likely to develop resistance to commonly used herbicides in Oklahoma crop production. However, because of the diversity of crop production in Oklahoma, there are many other weeds that also may be of concern.

## What happens after I submit a sample?

After a sample is received at OSU, the seed will be grown in greenhouse facilities. Depending on the weed species, the crop from which the sample was collected, and the herbicide use history, the sample will be screened with several herbicides from different modes of action at multiple rates. Approximately three weeks after treatment, treated plant samples will be compared to untreated and known-susceptible check samples

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are also available on our website at:  
<http://osufacts.okstate.edu>

to determine if resistance is present. Once the sample has been evaluated, the results will be summarized and returned to the producer who submitted the sample. The entire process should take 8 to 12 weeks.

## How do I collect and submit a sample?

- Seed should be collected from fields sprayed during the current cropping season. Avoid collecting seed from field edges or areas that were not treated.
- If possible, collect seeds from at least five mature plants. Maturity can usually be determined by seeing how easily the seed will shatter from the seedhead. It is also important to collect enough seed for greenhouse testing—enough to fill a small coffee cup will provide plenty of seed for testing. Place seeds in a paper bag or large envelope for mailing.
- Each weed species should be submitted as a separate sample. Likewise, samples from multiple fields should be submitted separately.
- Complete the information form included with this fact sheet and submit it with your seed sample. Seed samples and information should be sent to:

OSU Extension Weed Science Diagnostic Services  
Attn: Joe Armstrong  
Dept. of Plant and Soil Sciences  
368 Ag Hall  
Stillwater, OK 74078

For more information on herbicide mode of action, please see Extension Fact Sheet PSS-2778, "Herbicide How-to: Understanding Herbicide Mode of Action."

***If you have any questions, please contact your county OCES agricultural educator or Joe Armstrong, OSU Extension Weeds Specialist, at (405) 744-9588 or [joe.armstrong@okstate.edu](mailto:joe.armstrong@okstate.edu) for more information.***

### Sample submission form

Please provide as much information as possible. All results will be kept confidential, however they may be referenced in OCES reports by the county from which the sample was submitted.

#### Grower information

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_, OK Zip: \_\_\_\_\_

County: \_\_\_\_\_

Phone: \_\_\_\_\_ Email: \_\_\_\_\_

#### Field information and history

Weed species submitted: \_\_\_\_\_

Herbicide(s) that you suspect the weed is resistant to: \_\_\_\_\_

Location (legal description, nearest intersection, GPS coordinates, etc.): \_\_\_\_\_

<b><i>Year &amp; crop grown</i></b> (List most recent crop first)	<b><i>Tillage practices</i></b> (conventional, no-till, etc.)	<b><i>Herbicides applied</i></b>
		PRE:  POST:
		PRE:  POST:
		PRE:  POST:
		PRE:  POST:

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